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AUTHOR Morrissey, Patricia A.
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ABSTRACT

The guide presents materials to help the teacher set up a peer tutoring system in the classroom. Aspects discussed include the benefits of such a system, which materials adapt to such a system (criteria that can be applied to materials/tasks being considered for it), how to adapt and design materials for such a system (including format issues, design issues, and assessment), and implementation and management of an intraclass peer tutoring system. (DLS)

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A GUIDE FOR TEACHERS: HOW TO SET UP A
PEER TUTORING SYSTEM IN YOUR CLASSROOM

Patricia A. Morrissey, Ph.D.

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Child Service Demonstration Center for Children with Learning Disabilities
at
Center for Innovation in Teaching the Handicapped
School of Education, Indiana University
Bloomington, Indiana 47401

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Introduction

In today's classrooms, whether in an open system or a traditional one, teachers are faced with serious time-management problems. In addition, with the trend toward the wide spread mainstreaming of handicapped children, regular and resource teachers must devise ways of coping simultaneously with multiple ability groups. This guide was prepared to help teachers develop efficient time-management skills and to help teachers to design or adapt instructional materials to meet the needs of advanced, average, and slow students in their classrooms.

The focus of this guide is a discussion of within-class peer tutoring systems; specifically:

- (A) Why peer tutoring?
- (B) Which materials adapt to peer tutoring systems?
- (C) How can materials be adapted to a peer tutoring system?
- (D) How does a teacher implement and manage a peer tutoring system?

In answering these four questions, examples will be given; they are descriptions of strategies which have been used by teachers in the past. However, the responsibility for designing any peer tutoring system rests primarily with each individual teacher, who is the best judge of his/her classroom needs and how to deal with them. This guide presents some general do's and don't's which hopefully will make easier the design and implementation of peer tutoring systems.

Why bother with peer tutoring?

Intra-class peer tutoring works. Many successful tutoring projects have been reported--in problem solving, language arts, reading, and

math; with kindergarten, elementary, junior, and senior high kids--and the results in every case indicate that peer tutoring is at least as effective as traditional methods.

Why does peer tutoring work--because the learner benefits, the tutor benefits, and the teacher benefits. Some specific reasons are outlined below.

Benefits

1. The learner

(A) Everyone agrees that one-to-one instruction is the most desirable--peer tutoring is a readily available way to truly individualize instruction.

(B) The learner views the peer tutor as a classmate who has mastered certain material, and develops confidence that s/he will do likewise.

(C) The learner does not view the peer tutor as an authority figure, so s/he is not on the defensive and feels free to ask questions without being ridiculed.

2. The tutor

(A) In many peer tutoring projects, tutors show even greater gains in reading and math than learners. The explanation may be--As Johnnie helps Joe, Johnnie keeps from sliding back to Joe's level.

(B) When tutoring, learning something acquires a new relevance. The tutor no longer views the teacher as an adversary, but as a partner in the identification, planning, and implementation of instruction for a learner.

(C) The trust and responsibility that the tutor assumes contributes to his/her self-confidence.

3. The teacher

(A) The teacher in an intra-class peer tutoring system becomes an instructional manager. S/he can shift many instruction responsibilities to the tutor.

(B) The teacher in an intra-class peer tutoring system can spend more time selecting, adapting and designing instructional materials and strategies.

(C) Peer tutoring shows others how the teacher can provide effective and efficient instruction to mainstreamed and low achieving children with a minimum of outside assistance.

4. General benefits

(A) Children view instruction as a joint effort and responsibility for them and their teacher.

(B) Children may develop an awareness and greater tolerance of the concept of individual differences.

(C) The amount of off-task behavior may decrease.

(D) Class time is efficiently allocated. No one suffers from lack of attention.

Time was spent going over a rationale for intra-class peer tutoring not because you, the reader must be convinced--you are already philosophically convinced it will work (or you would not have read this far). You want to know how to do it. This rationale will help you convince your co-workers, supervisors, and administrators. And then, a most exciting thing may happen--perhaps everyone will share their ideas and materials to improve instruction for all children.

Before continuing, three points need to be emphasized. What is to be shared with you is very simple. It is not an earth shattering phenomenon. Some of you probably are already using tutoring systems. You have designed these on your own. Implementing an intra-class peer tutoring system takes time and effort--it will not just happen. Hopefully, the general principles we will share will make the job a little easier. It is not a panacea. It will not work for all children and/or for all instructional objectives. When it does or does not work, let others know about it. By sharing your successes and problems with others, everyone's attempts at establishing peer tutoring systems will be facilitated.

Which materials adapt to a peer tutoring system?

Five criteria have been identified that can easily be applied to materials/tasks being considered for a peer tutoring system. If a teacher can answer yes to each of the following criterial statements, then there is a high probability that a material/task can be successfully adapted for tutoring.

Criteria

1. Is it an essential skill?

Is the task being reviewed by the teacher critical to a child's continued progress? Six essential tasks are listed in Table 1: reading orally, comprehension of what is read, doing math word problems, knowing multiplication facts, defining words, and spelling words. Therefore, the teacher would respond yes to the first criterial question for all six tasks.

2. Does the task lend itself to drill and practice?

All the tasks in Table 1 could be structured in terms of a drill and practice situation, but some would be more easily adapted than others. That is, the "rules" for drill and practice could be more easily specified for some tasks than others; and therefore be more easily explained to tutors and learners.

3. Does the task involve a minimal shift in task difficulty per tutoring unit?

This criterial question relates directly to #2. It refers to the ease with which the teacher can control the difficulty level of the material presented to the learner in the tutoring situation. In Table 1 the teacher could easily control the difficulty level of reading comprehension questions (Table 1, #2), multiplication facts (#4), spelling words (#6), and the conditions under which each task is to be presented. Similar statements however could not be made for examples #1, #3, or #5. Much more time would be required in selecting items with the same difficulty level, because the tasks themselves are more complex and variable. In addition, the teacher's instructions to the tutor would require greater elaboration for tasks #1, #3, and #5. Therefore, it would probably be inadvisable for a teacher to structure tasks like #1, #3, or #5 for a peer tutoring situation.

4. Does the task involve direct participation of both the tutor and the learner?

Any task could be adapted for rapid exchanges between a learner and tutor. It is important to keep the exchanges well balanced. The tutoring sessions should begin with a brief description of pro-

cedures, followed by the tutor presenting a component of the task (i.e., the first multiplication equation $2 \times \underline{\quad} = 12$), followed by the learner giving a response, concluding with the tutor giving feedback " i.e., yes, $2 \times 6 = 12$, or "Let's try again"). In time, the description of the procedures can be dropped from the beginning of a tutoring session. Essentially the tutor serves as a human teaching machine who can make decisions about the pace of instruction, the accuracy of responses, and the need for remediation.

5. Does the task lend itself to binary classification of response accuracy?

This is probably the most critical criterion to be applied when considering whether or not a task should be adapted for a peer tutoring system. Unless the teacher can structure the tutoring situation so that the tutor can make quick definitive assessments of the accuracy of each learner response (i.e., correct/incorrect), the tutoring system is apt to fail. If a tutor is required to use complex decision making after each learner response, the pace of the tutoring may be disrupted and the pedagogical value of the situation may be marginal.

Let's look at the tasks in Table 1 with respect to this criterion. Task #1 would require the tutor to make qualitative decisions about the accuracy of learner performance, that is, the tutor would be required to discriminate among learners in terms of errors, omissions, substitutions of words, non-word, or part-word, insertions, ignoring punctuation, repetitions, pauses, and self-corrections. The teacher would have to prepare a complex list of rules for the tutor to internalize, to use in evaluating learner performance. The feedback system for such a situation would also require complex decision-making on the part of the tutor. The tutor must not only discriminate among multiple

error categories, s/he must give appropriate feedback for each error.

In contrast in task #2, although the tutor must process the accuracy of learner responses, comprehension questions could be designed so yes, or no, or simple one word answers are required of learner.

Task #3 would cause problems similar to those that would be encountered in task #1.

In task #4 the tutor could use flash cards with answers on back for the learner. Tutor could determine accuracy of a response and give feedback quickly.

For tasks #5 and #6, what do you think?

Some relative criteria

In addition to the five criteria reviewed above, three variables should be taken into account when reviewing a task/material for tutoring: (a) the time allotted for tutoring, (b) ages of the children, and (c) the ability level of the tutoring participants. Although there are no hard and fast rules concerning these variables, the following should be noted:

1. The optimal interval for tutoring in the primary grades is 15-20 minutes. With older children up to an hour is appropriate if several different kinds of activities are included in the session.
2. For the primary grades, procedures, responsibilities, and decision-making should be kept extremely simple. This point is discussed with examples in a later section of the guide. Briefly, the younger the children are, the shorter the tutoring sequence. A ten-step sequence is probably maximum for kindergarten through fourth grade.
3. A child should never be required to tutor in material which s/he has not yet mastered. It is probably more advisable to assign average

ability students as tutors for slow students, because bright children tend to be impatient. There are, of course, exceptions to this suggestion. Additional suggestions related to the ability issue will be given later.

Summary

When considering material for adaptation to a peer-tutoring system, if the material involves drill and/or practice, allows a response of yes to the other criteria, then the teacher is ready for the next step-- how to adapt and design materials.

How to adapt and design materials for a peer tutoring system.

This section is presented in three parts. The following topics are considered: (a) format issues, (b) design issues, and (c) assessment.

Format. The format of tutoring materials is a critical issue. It has direct implications for tutor training, and ultimately for the success of the tutoring system itself. The basic principle is to keep everything simple.

The format for a peer tutoring system should meet the following criteria:

- (1) begin at the child's entry level;
- (2) have appropriate sequencing and pacing;
- (3) have relevant and prompt feedback;
- (4) incorporate a reward system;
- (5) control for the probability of failure;
- (6) provide for frequent assessment of progress.

Each of these criteria will be reflected in different ways in different situations, but some general suggestions are offered below to assist in the design of specific systems.

Appropriate entry level. Two procedures facilitate the identification of a child's entry level. The first procedure is the administration of a pretest of the content which is to be incorporated into a tutoring system. Pretest scores give the teacher an objective record

of the status of each student relative to the proposed tutoring content. An example of a domain referenced test is given in Figure 1. This test was given by teachers who intended to establish a peer tutoring system in multiplication. The test represents sentence equations randomly selected and generated from the content domain of " $2 \times 0 = 0$ " to " $12 \times 12 = 144$." Measurement research suggests that if a domain can be defined, in this case the "2's" through the "12's" times table, and 30 items can be randomly generated, then a child's performance on a 30-item test is a representative reflection of the child's performance if s/he had been given every possible item from the domain.

The second procedure which should be incorporated into a tutoring sequence to insure adjustments for a child's entry level, is to require the tutor to document a child's daily progress and to review material from the previous session (and record the results) before beginning new material.

Appropriate sequencing and pacing. Content sequencing will generally be determined from the original material from which the tutoring materials are adapted and from the specific objectives the teacher has outlined for each child. A rule of thumb for any sequence is that it should involve the following activities--identification, recall, and application.

Figures 3a, 3b, and 3c show a pedagogically sound instructional sequence for teaching multiplication facts, but it is too complex for a tutoring situation. Figure 2 shows an instructional sequence for teaching sight words from the Merrill Linguistic Reading Series. This sequence is short and simple and has been successfully used in a tutoring context. Generally the procedural/instructional sequence for tutoring should be kept to ten steps. Familiarization is quickly achieved by both tutors and learners, positive self-concepts are fostered, and efficient pace

is facilitated. Monotony will not occur if tutoring units are kept to 15-20 minutes, and if minor changes are occasionally introduced.

Although pacing should be individually adjusted, it can be easily demonstrated during training of tutors through roleplaying activities.

Relevant and prompt feedback. Feedback can be a powerful instructional tool. It can take many forms, some having more instructional value than others. Some examples are:

- (1) simple yes/no, good/let's try again.
- (2) correct/supply the correct answer when incorrect answer is given.
- (3) cueing, give a partial answer (i.e., sounds like; if $2 + 3 = 5$, then $3 + 2 = \underline{\quad}$).
- (4) recycle through an entire sequence.
- (5) identify the answer, then ask student to recall, and/or to apply; if the student cannot label the tutor provides the label, then student must apply; if the student cannot apply, the tutor must do it, then ask the student to replicate the entire sequence; identify, recall, apply. See Figure 3c.

Examples #1 and #2 give the student who makes an error only marginal information about the inappropriateness of his/her response. Examples #3, #4, and #5, on the other hand, provide the student with feedback that is qualitatively of more use since it gives additional information about why an answer is correct or incorrect.

Reward system. The incorporation of a reward system is imperative to any tutoring system. The specific nature of the reward system is limited only by the teacher's creativity and ingenuity. Some rewards are intrinsic, i.e., qualifying to be a tutor, progressing from learner to tutor status, to be a tutor is a privilege to be earned. Extrinsic rewards for peer tutoring can be built around traditional reward options: For example progress charts on bulletin boards, and/or contingency

contracting (i.e., free time to play a favorite game if "X" objective(s) is (are) met in tutoring session).

Control for the probability of failure. This can be handled in a variety of ways. The system will work best if certain monitoring activities are incorporated in the system routine. The following suggestions are ones which have yielded optimal results.

- (1) Collect daily progress sheets.
- (2) Have a "tutors" meeting once a week.
- (3) Have a "learners" meeting once a week.
- (4) Shift tutor/learner pairs every month. This controls for hostility, cheating, and gives "former learners" opportunity to be tutors.
- (5) Give tutors tests on tutoring material prior to their beginning tutoring. Set up passing criteria.

Frequent assessment of progress. Assessment of progress, like the other format criteria, will be determined to a great extent by the specific tutoring situation. Three general recommendations are given here as guidelines:

- (1) Each tutoring session should be made up of "X" number of units, in which the content changes but not the sequence.
- (2) The last "five minutes" of each tutoring unit should be devoted to a summary evaluation of all units so the teacher and tutor will know with which content to begin the next tutoring unit.
- (3) Teacher should assess learners on posttests periodically to get information on rate of progress.

Design of materials: Some ideas

(1) Flash cards are particularly useful for tutoring units which involve review and drill, as well as those that have a "game format." Tutors can easily assist teachers in making such materials. Cards should all be numbered for easy filing. Color coding is also useful.

(2) To minimize monotony it is useful to use objects as well as print materials during a tutoring unit.

(3) Commercial "programmed materials" can be used, with the tutor acting as monitor and reinforcer.

(4) Tape recorders and language masters can also be used, with the tutor assuming similar roles.

Design of assessment record forms

The assessment record forms used in a peer tutoring system are the documentation of the effectiveness of the system. How well Mary is doing as a tutor, and how well Jane is doing as a learner must be documented if a peer tutoring system is to prove useful to the teacher. Instructional decision-making and valid individualization are achieved when consistent, efficient record keeping practices are observed. Like so many elements in a peer tutoring system, record keeping should be kept simple. But two additional criteria apply to record keeping practices. First, the older the tutor the more responsibility for record keeping s/he can assume; and conversely, the younger the tutor the less responsibility s/he can assume. Second, record keeping should not disrupt the information flow in the tutoring unit. A good record keeping system would have the following elements:

- (1) All forms would have the name of the tutor/learner.
- (2) Relevant general content information; i. e., word recognition, word attack.
- (3) Record of programs:
 - (a) a date for each tutoring unit,
 - (b) which items covered per tutoring unit,
 - (c) which items correct/incorrect per tutoring unit.
- (4) Adequate spacing--the younger the child, the more space s/he will need to record progress.
- (5) Simple coding procedures.

(6) Teacher summary sheets for daily performance, and pretest posstest performance.

Figure 4 is an example of a good assessment form, and figure 5 is an example of a poor one (primarily because of spacing).

Implementation and Management of an Intra-Class Peer Tutoring System

After a teacher has selected/designed a peer tutoring system that corresponds to an appropriate instructional goal, s/he begins the implementation and management of the system. The following sequence is presented as a checklist.

(1) Assignment of children to instructional roles

- ___ a. Give CRM pretest.
- ___ b. Divide class into "factors" and "learners."
- ___ c. Present an overview to entire class, to break the ice have children in small groups make needed materials; and "package" materials.
- ___ d. Assign tutor-learner pairs.

(2) Train tutors

- ___ a. Stress special nature of assignment, i.e., responsibility, privilege, tentative, conditional nature of assignment.
- ___ b. Use roleplaying techniques to train tutors, having them assume both roles (i.e., tutor/learner).
- ___ c. Use many questions--"After you do this, what do you do next?"
- ___ d. Show all materials to be used, designate location of materials and tutoring activities.
- ___ e. Drill on the routine of a tutoring unit--use many examples.
- ___ f. Spend sufficient time on record-keeping practices.

NOTE: Training should not exceed one hour at a time.

(3) Scheduling

- a. Set aside same time each day for tutoring related activities:

___ Tutoring

___ Testing

___ Group meetings, etc.

- b. The optimal amount of time for tutoring is 15-30 minutes.

(4) Monitoring

___ a. Spot check folders/packages to see that materials/records are complete and intact.

___ b. Observe tutoring units to see that students are on task and covering the correct material.

(5) Assignment of tutoring units

___ a. Check records of progress weekly, make up tutoring units in weekly blocks for each tutoring pair.

Some general recommendations

(1) Not all children will be ready to function appropriately in the tutoring system at first. Start with a small group, and add more children as the idea "catches on."

(2) Assign to pairs children whose dispositions are compatible. Sex of the child is not necessarily a factor in successful assignments.

(3) Make sure tutors have all the necessary skills to perform successfully, i.e., can read material, knows criteria for correct answer.

(4) Let the slower kids monitor some instruction of others, i.e., check spelling words.

(5) Kids of equal ability may enjoy a game format for tutoring with neither given a specific role.

TABLE 1

How to Select Appropriate Tutoring Tasks

Criteria for Selection

Tutoring Task Examples	Essential Skill	Drill and/or Practice	Minimal Shift in Task Difficulty Per Tutoring Unit	Direct Participation of Both Tutor & Learner	Binary Classification of Response Accuracy
1. Monitoring oral reading	Yes	P	No	Yes	No
2. Assessing reading comprehension by asking questions	Yes	P	Yes	Yes	Yes
3. Assessing ability to solve math word problems	Yes	P	No	Yes	No
4. Reviewing of multiplication facts	Yes	D	Yes	Yes	Yes
5. Assessing definitions of spelling words	Yes	P	No	Yes	No
6. Giving spelling test	Yes	D	Yes	Yes	Yes

FIGURE 1

NAME _____

SCHOOL _____

GRADE _____

TEACHER _____

SEX _____

DATE _____

1. $\underline{\quad} \times 13 = 15$

16. $2 \times 1 = \underline{\quad}$

2. $4 \times \underline{\quad} = 4$

17. $9 \times \underline{\quad} = 108$

3. $\underline{\quad} \times 6 = 66$

18. $\underline{\quad} \times 6 = 42$

4. $7 \times \underline{\quad} = 28$

19. $\underline{\quad} \times 5 = 45$

5. $\underline{\quad} \times 7 = 70$

20. $\underline{\quad} \times 12 = 96$

6. $6 \times 0 = \underline{\quad}$

21. $6 \times \underline{\quad} = 36$

7. $11 \times 0 = \underline{\quad}$

22. $3 \times \underline{\quad} = 33$

8. $\underline{\quad} \times 4 = 20$

23. $\underline{\quad} \times 6 = 0$

9. $\underline{\quad} \times 0 = 0$

24. $8 \times \underline{\quad} = 64$

10. $10 \times \underline{\quad} = 100$

25. $5 \times 5 = \underline{\quad}$

11. $1 \times \underline{\quad} = 3$

26. $12 \times \underline{\quad} = 36$

12. $3 \times \underline{\quad} = 12$

27. $7 \times \underline{\quad} = 49$

13. $4 \times 0 = \underline{\quad}$

28. $9 \times \underline{\quad} = 36$

14. $8 \times \underline{\quad} = 88$

29. $\underline{\quad} \times 4 = 40$

15. $\underline{\quad} \times 5 = 10$

30. $2 \times 6 = \underline{\quad}$

FIGURE 2

Tutoring Sequence

<u>Tutor Observation</u>	<u>Check Here</u>
A. Teaching Steps	
1. Get materials from lesson box.	_____
2. Show your partner flashcard.	_____
3. Say the word.	_____
4. Spell the word.	_____
5. Use the word in a sentence.	_____
6. Ask your partner to say word.	_____
7. Ask your partner to spell word.	_____
8. Ask your partner to use word in a sentence.	_____
9. On progress sheet, check words covered that day in the upper half box.	_____
A. Review Steps	
1. Take flashcards covered that day and show them one at a time to your partner.	_____
2. Say to your partner, "Please say this word."	_____
3. On progress sheet, put a plus sign (+) in the lower half box if word is correct and a minus sign (-) if word is incorrect.	_____
4. Gather all materials and put back in lesson box.	_____

FIGURE 3a

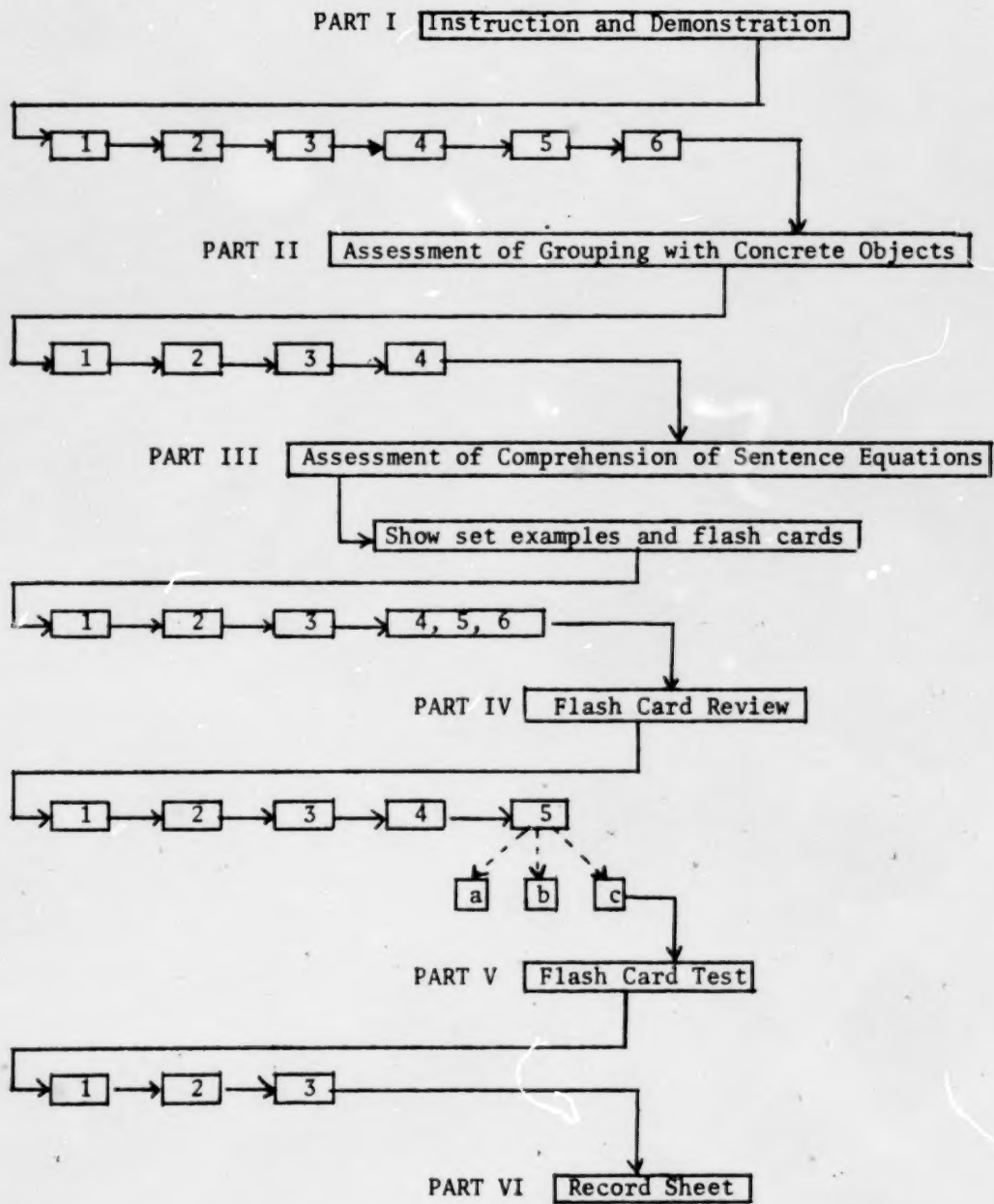


FIGURE 3b

PART I Instruction and Demonstration

1. Read sentence equation
2. First number equals number of set
3. Second number equals number in one set
4. Third number equals number in total set
5. Explanation of times sign and multiplication/addition equivalence
6. Explanation of equals sign

PART II Assessment of Grouping with Concrete Objects

1. Read sentence equation
2. Given equation, make proper number of sets
3. Given equation, make proper number within each set
4. Given equation, make proper number in total set

PART III Assessment of Comprehension of Sentence Equations

Show set examples and flash card

1. Points to the number that equals number of sets
2. Points to the number that equals number within a set
3. Points to the number that equals number in total sets
- 4, 5, 6. Picks multiplication/addition sentence equation equivalence

PART IV Flash Card Review

1. Multiplication/addition equivalence
2. $\square \times \square = \square$
3. $\square \times \square = \square$
4. $\square \times \square = \square$
5.
 - a. After first pass, choose a second set of flash cards and begin again with Part II
 - b. After second pass, choose a third set and begin with Part III
 - c. After third pass, choose another set and begin with Part IV (for all passes after the third pass)

PART V Flash Card Test

1. First test
2. Second test with only equations missed on the first test
3. Third test with only equations missed on second test

PART VI Record Sheet

1. Record equations missed on third test

FIGURE 3c

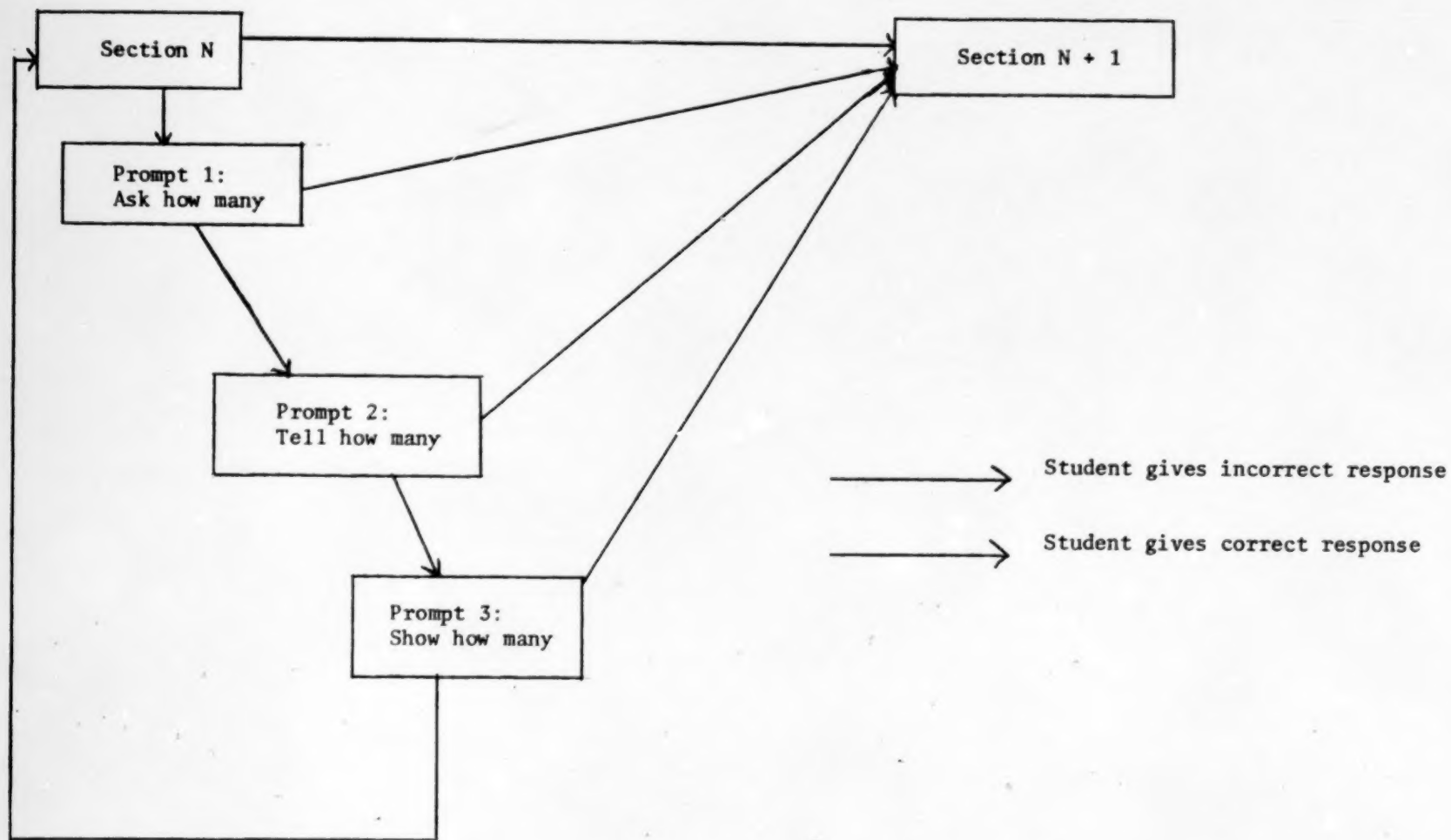


FIGURE 4

Record Sheet

Tutor _____

Tutee _____

School _____

Grade/Section _____

Starting Date _____

	Monday	Tuesday	Wednesday	Thursday
Week 1				
Week 2				
Week 3				
Week 4				

FIGURE 5

PROGRESS SHEET

Reading

DATE: _____

TUTOR NAME: _____

TUTEE NAME: _____

= word

+ = word correct

- = word incorrect

	M	T	W	TH	F
AM					
I					
BIT					
FIT					
HIT					
SIT					
LIT					
IT					
BITS					
FITS					
HITS					
SITS					
IT'S					
FOR					
PIN					
WIN					
BIN					
TIN					
IN					
INTO					
PINS					
WINS					
BINS					
OF					
SIX					
FIX					
SIPS					

	M	T	W	TH	F
MIX					
TOOK					
SHE					
SAID					
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